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## Using a Wiki in Nursing Education and Research

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# Using a Wiki in Nursing Education and Research\*

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## Abstract

With a wiki, learners can share information, resources, and experiences, and work together as a group. A wiki is equally valuable to a nursing research team: it can be used to communicate information to team members; foster collaboration among the team; disseminate resources, forms, and other documents for conducting the research; and share experiences with study implementation. Potential uses of a wiki in nursing education and research are discussed in this paper. One team's use of a wiki in a large multisite nursing education study is reported.

**KEYWORDS:** wiki, nursing education, nursing research

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The first web browsers, the first phase of the World Wide Web known as Web 1.0, provided read-only access to existing web pages. In contrast, the new World Wide Web referred to as Web 2.0, and the “Social Web,” has been called the “Read and Write Web.” It enables people to collaborate with one another and interact socially in a web environment through blogs, wikis, podcasts, and social-networking sites such as Facebook, MySpace, or, for professionals, LinkedIn. A wiki, one of the many Web 2.0 collaboration tools, is web-based software that allows all viewers of a web page to edit its content online; because it is easy to use, a wiki lends itself to collaboration and cooperative work on texts (Ebersbach, Glaser, & Heigl, 2006, p. 10). Since launching in 2001, the most recognizable wiki is the online encyclopedia, Wikipedia (<http://www.wikipedia.org>).

Faculty at all academic levels are experimenting with wikis to find effective educational applications for their students. Evidence suggests that cooperative learning fosters students’ ability to work with others and may lead to better cognitive outcomes and higher achievement (Miller & Groccia, 1997; Stiles, 2006). Wikis represent a shift in information technology tools by supporting collaboration and the intellectual sharing of ideas (Chawner & Lewis, 2006). With a wiki learners can share information, resources, and experiences, and work together as a group. A wiki creates a learning community among students and actively engages them in the learning process. It also provides an effective communication tool with a group of learners.

The majority of studies using wiki software have been directed toward education. As Web 2.0 usage becomes more mainstream, health providers are recognizing its unique value (Hanson, Thackeray, Barnes, Neiger, & McIntyre, 2008). However, there is little known about how nurse educators and researchers are using wikis. In this paper, potential uses of a wiki in nursing education and research are discussed, and one nursing research team’s use of a wiki in a large multisite nursing education study is reported.

## **USES OF WIKIS**

The first wiki, with the name WikiWikiWeb, was developed in 1995 by Ward Cunningham. Wiki is a Hawaiian word meaning “quick” or “hurry,” reflecting the programming features of wiki software in which content can be made quickly available to students and other users (Ebersbach, et al., 2006, p. 11). A wiki is a tool for communication and collaboration on the web (Boulos & Wheeler, 2007; Chawner & Lewis, 2006; Hsu, 2007; Oatman, 2005).

There are several advantages to wikis, such as easy editing, automatic linking of pages, and a “History” function (Ebersbach et al., p. 23). While other Web 2.0 tools such as blogs are the creation of a set of pages and documents primarily by a single individual, a wiki allows many users to act simultaneously as both readers and writers (Hsu, 2007). As a result, with a wiki users can easily create, organize, edit, and shape content in a collaborative manner (Hsu; Kaminski, 2008). These actions can be done with a normal browser and without adding new software. All changes to a wiki are documented in “History”, and any edits made to the pages can be tracked. This function is useful with group projects when the group or an individual needs to refer to an earlier iteration.

Problems, however, can occur with wikis. A wiki can be vandalized with WikiSpam, a form of unwanted links to commercial or pornographic sites (Chawner & Lewis, 2006). Even though wiki sites provide some protections, they generally depend on members to monitor the wiki pages and changes made to them. As a result, less active wiki communities may require additional spam protection. Lack of interest can be another key issue (Ebersbach, et al., p. 26). This applies to all web environments, not only wikis. A wiki needs to be recognized as a valuable tool for cooperative work and collaboration, or it will not be used by group members. Other issues with wikis are concerns about intellectual property, a lack of an explicit structure for organizing documents, and a lack of visual appeal (Skiba, 2005). Because anyone with access to the wiki site can add and modify pages, errors in content can result, and users need to monitor the site for spelling, grammatical, and punctuation errors.

### ***Education***

Today’s learners are members of the Net Generation, in need of different approaches in their education (Tapscott, 1998, p. 139). They interact frequently with digital technologies - computers, video games, and the internet. To meet the needs of these learners, faculty need to shift from one-way teaching and learning methods to interactive and cooperative instructional strategies (Boulos & Wheeler, 2007; Hsu, 2007; Oermann, 2004). A wiki serves this purpose. With a wiki students can share information and experiences with peers, the teacher, and others. They can collaborate online with one another, work together as a group, and critique each other’s work. Wikis can be used as discussion forums; they can be set up to explore specific topics of a short term nature or for general discussions. With this ability a wiki can supplement an existing Course Management System or be used for discussion in place of such a system.

Group projects and work in a nursing course can be facilitated with a wiki. Students can develop the project collaboratively on the wiki, revising it as needed. Ciesielka (2008) used a wiki with graduate students to meet competencies in community health. Students were divided into small groups, and each group collected data on an aspect of a community and posted that information on the wiki. The information was organized by the faculty member into separate pages of content such as geography, economy, demographics, educational level, and healthcare resources of the community, among others. Students then posted their information based on these predetermined content areas, which helped organize the information on the wiki. Later students analyzed the data to develop program plans for the community. Graduate students viewed the wiki in this course as a valuable tool for group work and to encourage online communication with peers (Ciesielka).

A wiki would be useful in a nursing course for writing assignments. Students individually or as a group could develop an outline for a paper, write a portion of it, and edit other sections until they have a final product. They could work as a group to develop materials for clinical practice and critique documents developed by peers. Students might post care plans, concept maps, clinical worksheets, and similar assignments on a wiki for peer review rather than each student submitting weekly assignments to the clinical teacher. Peers can provide valuable feedback on content and if the writing is clear (Oermann & Gaberson, 2009). One student could post solutions to a problem or actions to take in a hypothetical case, with peers adding to or modifying those solutions or actions, presenting evidence to support them, and critiquing responses. In addition, the openness of the wiki encourages peer learning (Boud, 2001). Students also might use a wiki to post notes from class, ask questions about content for which unsure, and respond to questions from the teacher as a review of content being learned in class. Students can use a wiki for brainstorming ideas (Yan, 2008).

Several educators developed online courses using a wiki. Harris and Zeng (2008) created an online health information management course using Confluence software (version 2.2.10; Atlassian; San Francisco, CA). The online course was offered for two consecutive classes, 2006 and 2007, in a baccalaureate program. Half of the students agreed that the wiki helped them to learn, interact, and reflect in the online class. Thirty-seven percent of the students indicated they would like to use it in future classes. Moreover, students liked the wiki tool because it facilitated collaboration and communication and was effective for group projects. In contrast, students disliked the navigation aspects of the wiki and found some of the software features confusing and hard to learn (Harris & Zeng).

### ***Committees and Faculty Development***

A wiki would be a useful tool for committee work, allowing members to communicate with one another, share ideas, post minutes and other documents for review, compile resources for committee members, and keep track of activities. Faculty members could use a wiki for developing course documents and instructional materials, and for sharing teaching strategies with colleagues. This work would be facilitated with a wiki because of its ability to communicate information, encourage collaboration and sharing of ideas, and ease of use (Boulos, Maramba, & Wheeler, 2006).

A wiki could be developed for faculty development in a school of nursing and for use by preceptors and clinical agencies. Resources for teaching and assessment could be placed on the wiki, and discussions could be held to explore strategies for working with students. Educators could share experiences with teaching and what worked and did not work in their own situations. Another use of a wiki would be to prepare collaborative reports and other documents requiring data from various sources (Chawner & Lewis, 2006).

### ***Healthcare***

Wikis, blogs, and podcasts are being adopted increasingly by healthcare providers (Boulos et al., 2006). Health-related wikis include the Autism Wiki ([http://autism.wikia.com/wiki/Autism\\_Wiki](http://autism.wikia.com/wiki/Autism_Wiki)) and the Flu Wiki (<http://www.fluwiki.com/>), which were developed to share information. Crespo (2007) suggested that a wiki would be valuable in public health because it could be used to create a bottom-up knowledge base of what works and how it works, i.e., a “wikihealth.” The wikihealth model could provide a way for practitioners and community members to post information useful to the community for maintaining their health and successful strategies individuals have used (Crespo).

Wikis and other Web 2.0 methods may encourage the development of clinical decision support tools, which provide information to aid decision making at the point of care and in real time, for example, alerting providers to drug interactions and providing reminders about interventions. Wikis make it easier to collaborate in the development of those tools for healthcare providers (Wright, et al., 2008).

## ***Research***

A wiki is a valuable tool for improving communication and ease of access to information for research teams (Saucer, et al., 2005). Saucer, et al. (2005) reported on the use of a wiki for communication within a research team and to share manuals for daily laboratory work. These researchers also commented that using the wiki freed them from having to discuss administrative topics during face-to-face meetings and instead allowed them to focus on scientific discussions. However, little is known about the use of wikis in research particularly in nursing.

### **MANAGING NURSING EDUCATION RESEARCH WITH A WIKI**

We developed a wiki for use in a national, multisite nursing education study because of our need to share information with the research team, which consisted of two researchers at different universities, 14 site coordinators in 10 schools of nursing throughout the USA, and a statistician at another university. The study, currently underway, is testing the effects of brief practice on cardiopulmonary resuscitation (CPR) performance skills among nursing students. The wiki was aptly titled, “CPR Training Doses Research Site” (<http://cprstudy.wetpaint.com/>) (see Figure 1). It was created in September 2008 by the administrative assistant of the research team. Up to that time the researchers were emailing documents to site coordinators and each other, proving difficult as the information to be shared increased in volume and complexity. The wiki provides a means of communicating information to a large group, avoiding multiple emails to individual group members and “crossing” of emails and documents.

Early on we also recognized the need to develop as a research team and collaborate with each other to meet the goals of the study. A wiki was chosen as the tool to meet these needs because of its value in communicating information to team members; fostering collaboration; sharing resources, forms, and other documents needed for conducting the research; and sharing experiences with the study implementation. The wiki is not only accomplishing those goals but has become an essential tool for disseminating critical information and experiences among the site coordinators and with the researchers, saving time with repetitive questions from the large group. The wiki has proved invaluable as a means for communicating strategies for recruitment of subjects, issues encountered in different sites and how they were resolved, and preparing abstracts and manuscripts, with team members participating in their writing on the wiki. Team members can add and edit documents and information on the wiki.



*Figure 1.* Screenshot of wiki.

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As new information is added, team members receive an email with a link to the new postings; weekly updates also are emailed with links to view the postings for the past week. The layout and pages of the wiki have evolved based on group needs and the type of information to disseminate. Some team members, though, find it time consuming to check the “frequently asked questions” and extensive information available on the wiki and to navigate the site. For a wiki to be successful, all team members need to use it.

Initial reaction to the wiki was less than exciting; in fact, many team members indicated they had no knowledge of a wiki and would not use it. The complexity of the research design, the numbers of sites and coordinators, and general lack of prior research experience of the participants made the addition of one more aspect to learn seem overwhelming. Coordinators reported they had no time to learn a new skill while completing complicated institutional review board proposals and developing their own skills for implementing a technology-rich study. However, the researchers needed a way to decrease the multiple crossing copies of files, forms, and emails sent between the two of them and among the site coordinators. The decision was made to develop the wiki to meet these multiple needs of the research team. To orient the team, the administrative



assistant found a simple YouTube video, *Wiki in Plain English*, a 3-minute primer on Wiki use, which moved most site coordinators forward with its adoption.

The “CPR Training Doses Research Site” is a password-protected wiki, available only to members of the research group. The wiki consists of seven different site pages that have grown and changed names over time. Initial pages included a “Home” page, which provided a basic explanation of the research study; greeting from the study mascot, the CPR Labrador; a “Frequently Asked Questions” page; and a “Meet the Team Members” page. All members were encouraged to upload their pictures and provide brief information about themselves to begin forming as a team.

The wiki is now the repository for all information related to the study. There are pages with the study protocol and attachments; individual monthly calendars with data collection dates for each site; the IRB, consent forms, and information sheets; data collection tools; the equipment needed and how to use it; and other forms related to the study (Figure 2). Specific instructional pages for the experimental and control groups are included, providing all of the information needed to implement the study for each of those groups. Having the information available in one place is critical to effective implementation of the study across the 10 schools of nursing.



Figure 2. Example of types of research documents on wiki

As the date of the actual study launch approached, pages on data management, manikin management, and information technology (IT) guidelines for the IT person at each site were added. The “Frequently Asked Questions” page has grown to include 27 different topics. A separate wiki page is for writing abstracts and manuscripts about the study, allowing each team member to contribute and edit as the papers are being developed (Figure 3). Anyone involved in this CPR study can freely edit each wiki page and share knowledge and experiences.



*Figure 3. Wiki page for writing manuscripts about study*

## CONCLUSIONS

The Web 2.0 including wikis, blogs, podcasts, and social networking pages are valuable tools for communicating with others. With a wiki learners can share information, experiences, and resources, and can work together as a group. A wiki creates a learning community among students and actively engages them in the learning process. A wiki also provides an effective communication tool for use by a research team. It can function as a repository for information and documents needed by the team, foster collaboration among team members, and provide a means of discussing experiences with study implementation of value to other team members. A wiki is easy to use and set up; it also can serve other purposes in a nursing program such as disseminating information to preceptors and clinical agencies and among course faculty, and for faculty development.

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